

REMARKS

Claims 1-16 were pending in the subject application as of the August 27, 2003 mailing date of the current office action, and were rejected pursuant to 35 U.S.C. §102. The current office action also includes a Double Patenting rejection, wherein the Examiner indicates that "should claim 1 be found allowable, claim 11 will be objected to under 37 C.F.R. §1.75 as being a substantial duplicate thereof" and that "should claim 10 be found allowable, claim 16 will be objected to under 37 C.F.R. §1.75 as being a substantial duplicate thereof."

As indicated above, Applicants have amended claim 11 to depend from claim 1 and claim 16 to depend from claim 10. Also, new claims 17-26 have been introduced to seek patent protection for additional embodiments of the present invention. No new matter is added in these new claims, support for which is provided throughout the specification of this application, as filed, including, e.g., page 9, line 23 to page 15, line 11 (claim 17), page 14, line 17 to page 15, line 5 and page 9, line 23 to page 10, line 12 (claim 18), page 16, line 15 to page 17, line 5 (claim 19), page 8, line 25 to page 9, line 10 (claim 20), page 8, line 25 (claim 21 and claim 26), page 27, lines 2-10 (claim 22), page 28, line 21 to page 30, line 12 and page 33, line 24 to page 34, line 24 (claim 23), page 28, line 21 to page 30, line 12 and page 34, line 25 to page 35, line 18 (claim 24), page 28, line 21 to page 30, line 12 and page 32, line 18 to page 33, line 16 (claim 25).

Applicants submit that the pending rejections (which are discussed below) are either overcome or rendered moot in view of at least the amendments set forth above and the remarks that follow.

The Double Patenting Rejection

The Examiner notes that "should claim 1 be found allowable, claim 11 will be objected to under 37 C.F.R. §1.75 as being a substantial duplicate thereof" and that "should claim 10 be found allowable, claim 16 will be objected to under 37 C.F.R. §1.75 as being a substantial duplicate thereof."

Claim 11 has been amended to depend from claim 1, and claim 16 has been amended to depend from claim 10. At least because (a) amended claim 11 depends from, and adds features to claim 1, and (b) amended claim 16 depends from, and adds features to claim 10, the Double Patenting rejections have been overcome and should be removed. Applicants note, for the record, that by amending these claims, Applicants do not acquiesce to the Examiner's Double Patenting rejections thereof, or to the reasons underlying the Double Patenting rejections.

The 35 U.S.C. §102 Rejections

Claims 1-16 are rejected pursuant to 35 U.S.C. §102(e) as being anticipated by U.S. Patent Number 6,343,147 to Yamamoto (the "Yamamoto patent"). Applicants respectfully traverse this rejection, which is inappropriate in view of the differences between claims 1-16 and what is disclosed in the Yamamoto patent.

Claim 1 recites - in pertinent part - that the claimed image processing apparatus includes a first and second signal processing circuits, wherein the second signal processing circuit adds a noise signal to the m-bit digital signal from the first processing circuit.

In contrast, the Yamamoto patent calls for multiplication of the image data by a random number. Also, according to the Yamamoto patent, the image data includes a decimal number because the decimal image data is multiplied by a random number that is greater than 0 and less than 1. Therefore, in order to deal with the image data thus obtained by multiplying the image data by the random number, the technique described in the Yamamoto patent must rely upon a computing process and computing unit for rounding the decimal number so as to convert the decimal number into an integer.

On the other hand, according to claim 1 as presently pending, the noise signal is added to the video data, instead of multiplying the video data by the random number. Thus, the digital signal that has been subjected to the addition of the noise signal does not include a decimal number. Consequently, unlike the technique disclosed in the Yamamoto patent, the image processing apparatus of the present invention does not require a computing process and computing unit for rounding the decimal number so as to convert the decimal number into an integer.

To clarify, the rounding-off of the two less insignificant digits is performed by the "second signal processing circuit" of the image processing apparatus of the present invention in order to convert the bit number of the digital signal in accordance with the display property of a display means. Therefore, the rounding-off that is performed in accordance with image processing apparatus of the present invention is not for the purpose of rounding off the decimal number that is caused by multiplying the video data by the random number.

Claim 1, as presently pending, also differs from the Yamamoto patent in that the first signal processing circuit expands (i.e., scales up, increases) the bit number in performing the gamma correction. With such an arrangement in which the bit number of the digital signal is expanded in performing the gamma correction, it is possible to attain a greater effect of the gamma correction by outputting a video signal that is more finely fragmented. A similar/comparable effect would not be enjoyed by the techniques and arrangements disclosed in the Yamamoto patent.

Moreover, according to Claim 1 as presently pending, the use of the second signal processing circuit inhibits not only the occurrence of pseudo contour caused by the gamma correction but also pseudo contour caused by the expansion of the bit number. However, the Yamamoto patent fails to disclose - let alone adequately address - the technical problem of the occurrence of pseudo contour caused by the expansion of the bit number.

For at least these reasons, claim 1 is patentable over the Yamamoto patent, as are claims 2-16 each of which depends (either directly or ultimately) from and thus incorporates the features of claim 1.

Additionally, although the Yamamoto patent touches upon randomization of the pixel value of each pixel after the noise superimposition, it does not suggest the features of claims 6 and 7 pertaining to the noise signal. Further, the Yamamoto patent also fails to suggest the feature of claim 14 of the present application, namely that the pre-set value (i.e., gamma value) in the bit converting means is rewritten in accordance with the brightness in surroundings of the image display apparatus.


Therefore, at least each of dependent claims 6, 7 and 14 - in addition to being patentable by virtue of depending from patentable claim 1 - is also patentable based on the features recited therein.

Regarding the new claims added herein, new claim 17 includes at least some of the features that are recited in claim 1 and that are neither disclosed nor suggested in the Yamamoto patent. For at least this reason, claim 17 is patentable over the Yamamoto patent, as are new claims 18-26, each of which depends (either directly or ultimately) from and thus incorporates the features of claim 17.

In view of the amendments and/or remarks set forth herein, Applicants respectfully request reconsideration and allowance of claims 1-16 and initial consideration and allowance of new claims 17-26.

If the undersigned can be of any assistance in advancing the prosecution of this case, the Examiner is invited to contact him through the information given below.

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Respectfully submitted,

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